

From wang!elf.wang.com!ucsd.edu!info-hams-relay Sat Apr 6 18:00:07 1991 remote  
from tosspot  
Received: by tosspot (1.64/waf)  
via UUCP; Sat, 06 Apr 91 22:10:12 EST  
for lee  
Received: from somewhere by elf.wang.com id aa00783; Sat, 6 Apr 91 18:00:06 GMT  
Received: from ucsd.edu by relay1.UU.NET with SMTP  
(5.61/UUNET-shadow-mx) id AA28287; Sat, 6 Apr 91 09:46:54 -0500  
Received: by ucsd.edu; id AA23541  
sendmail 5.64/UCSD-2.1-sun  
Sat, 6 Apr 91 04:30:19 -0800 for nixbur!schroeder.pad  
Received: by ucsd.edu; id AA23537  
sendmail 5.64/UCSD-2.1-sun  
Sat, 6 Apr 91 04:30:16 -0800 for /usr/lib/sendmail -oc -odb -oQ/var/spool/  
lqueue -oi -finfo-hams-relay info-hams-list  
Message-Id: <9104061230.AA23537@ucsd.edu>  
Date: Sat, 6 Apr 91 04:30:14 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams-relay@ucsd.edu>  
Reply-To: Info-Hams@ucsd.edu  
Subject: Info-Hams Digest V91 #274  
To: Info-Hams@ucsd.edu

Info-Hams Digest                      Sat, 6 Apr 91                      Volume 91 : Issue 274

Today's Topics:

10 MTR BAND INDUSTRIAL INVASION!  
Building Transmatch - should I use a Ferrite or Iron Powder?  
Codeless = worthless? (was Re: The first No-Code Ham is)  
Info-Hams Digest V91 #271  
Licensing Philosophy?  
NASA Prediction Bulletins  
Ultrasonics.

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 4 Apr 91 21:22:00 GMT  
From: swrinde!cs.utexas.edu!execu!sequoia!memqa!K1UGM!K1CF!KC1PK!KA1SRD@ucsd.edu

Subject: 10 MTR BAND INDUSTRIAL INVASION!  
To: info-hams@ucsd.edu

HELP! Industry is invading our 10 Meter band! There are several industrial RF devices, perhaps poorly configured RF thermoplastic sealing machines, which have invaded our 10 Meter amateur band. You may not even be aware of it, but some of the serious noise, swishing, buzzes, squeals and drifting garbage is what we NEED TO LOCATE and have the FCC take action on.

I feel that I can provide some general information on the matter, but we need YOUR HELP too. My amateur activity on 10 Meters, and yagi antenna has given me a fairly good feel for which general part of the country that the worst industrial interference is coming from. Before I continue, keep in mind where I receive from, (Massachusetts) and that you may or may not be in the proper skip area. Lets hope that someone may be near enough to hear the offender(s) on GROUNDWAVE! I ONLY hear it when the band is open to the general area described below, AND IT'S STRONG!

When the band is open from my area to the South Central part of the continent (perhaps Texas or New Mexico) I hear most of this trash. Specifically, what you will hear are unstable, cyclic and drifting AC modulated signals cross great portions of 28.5 to 29.5 Mhz.

Gathering accurate information on the specific problem is a must if we are to keep our bands clean. Although everyone's effort is important, please don't provide the FCC with "wild guesswork". The closer we are able to get to the actual industrial firm or acutal address, the better. I would be very interested in hearing from anyone that has a GOOD IDEA where this junk is coming from. The FCC should be contacted too, of course.

Lets get industry off our non-shared band! 73, Roger, W10J.  
Packet mail at: W10J@KA1SRD.MA.USA.NA

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Date: 4 Apr 91 20:29:09 GMT  
From: hpl-opus!hpnmdla!alanb@hplabs.hpl.hp.com  
Subject: Building Transmatch - should I use a Ferrite or Iron Powder?  
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, youngqd@jacobs.cs.orst.edu (Dean Youngquist) writes:

>Hello,

> I'm building a transmatch for use on the HF bands and I would like to  
> make the inductor using a toriodal core of Feritte or Iron Powder.  
> I have a catalog from Amidon Associates and they offer both types.  
> Can anyone tell me the advantages and disadvantages of Iron Powder  
> verses Ferrite material for inductor cores? Is one more efficient,  
> takes fewer turn of wire, handle more power? Also, what inductance  
> value is commonly used in HF transmatch boxes?

The ferrite usually has much higher mu (higher inductance for a given number of turns), but it also saturates more easily. It is usually used only for applications with essentially no net flux through the core, i.e. transformers (such as baluns).

For inductors, where there IS a large flux through the core, you want powdered iron. It has lower mu, but saturates much less easily. If you use the Amidon powdered-iron KW balun core, it should be good for 100 watts as an inductor in a tuner. You really should calculate the core flux density and make sure it doesn't exceed the rating, the the above rule of thumb should work.

The inductance value depends on the transmatch design. I would recommend borrowing a commercial transmatch and copying the design. Amidon's data sheet should tell you the microHenries per turns squared value.

73 AL N1AL

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Date: 6 Apr 91 07:30:27 GMT  
From: swrinde!zaphod.mps.ohio-state.edu!unix.cis.pitt.edu!dsinc!netnews.upenn.edu!  
eniac.seas.upenn.edu!depolo@ucsd.edu  
Subject: Codeless = worthless? (was Re: The first No-Code Ham is)  
To: info-hams@ucsd.edu

In article <8819@gollum.twg.com> sawyer@twg.com (Bruce B. Sawyer) writes:  
>In article <11806.27f641a1@zeus.unomaha.edu> acmnews@zeus.unomaha.edu (Paul W.  
Schleck KD3FU) writes:  
>>... will have a unique place in ham history as the first U.S. Amateur  
>>to become licensed without demonstrating proficiency in International Morse  
>>Code. I think a hearty congratulations to Robert is in order.  
>  
>Give me a break. Congratulations for NOT knowing something? If I'd come in  
>by this back door route I sure wouldn't be out advertising it in public. Let  
>the guy take his rightful place next to the mail-order Ph.D's.  
> AA6KX

No, you give us a break. I seriously hope that your comment was in jest, but seeing no smilies, I'll assume it wasn't.

Let's look at your above statement. You don't want to acknowledge Robert (N3IFY)'s achievement in getting his ticket because he didn't know code, or possibly knew the code but didn't bother taking the test, right? Then how do you feel about your own extra class license, knowing full well that you weren't tested on physics of semiconductors, vector algebra for antenna radiation patterns, or digital signal processing, all of which, in some way, have a part in amateur radio? After all, an extra class license is the highest class license - to get it, you should have to know EVERYTHING about amateur radio to pass the test, right?

CW is just one MODE, period. It's just like any other mode (ATV, FAX, Phone, SS, etc.). Why should it carry so much emphasis, particularly in the cases where it prevents or impedes would-be amateurs from joining the ranks? The fact of the matter is, it shouldn't. If Robert or any other no-code tech decides he wants to use code, then he or she has to learn the code. Same thing with any other mode - RTTY, ATV, etc. You need to understand it before you can use it.

Ramming CW down someone's throat for historical reasons doesn't wash. Neither does the "I had to, so you have to" argument. CW has its merits, just like any other mode. But considering a no-code tech ham to be less of a ham than any other license holder due ONLY to the fact that they didn't pass a code test is disgustingly childish.

--- Jeff

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Jeff DePolo N3HBZ/AE Twisted Pair: (215) 386-7199  
depolo@eniac.seas.upenn.edu RF: 146.685- 442.70+ 144.455s (Philadelphia)  
University of Pennsylvania Carrier Pigeon: 420 S. 42nd St. Phila PA 19104

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Date: 6 Apr 91 04:05:12 GMT  
From: usc!zaphod.mps.ohio-state.edu!unix.cis.pitt.edu!dsinc!wells!k3tx@ucsd.edu  
Subject: Info-Hams Digest V91 #271  
To: info-hams@ucsd.edu

Thanks for the nice summary of the old  
special prefixes 0 0 0

but

yes there were some kt prefixes - they were  
Temporary.

Exactly what for I never understood.

K3TX

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Date: 3 Apr 91 16:56:52 GMT  
From: hpfcso!hplvec!van@hplabs.hpl.hp.com  
Subject: Licensing Philosophy?  
To: info-hams@ucsd.edu

Hams are required to know the basics of radio technology because we're the only spectrum occupants that get to build our own gear. Everyone else \*HAS\* to buy FCC type approved/accepted transmitters. Hams can just cobble up a two transistor kilowatt linear :-) and go on the air.

Van "now where'd I put my soldering iron?" Walther  
NWOS

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Date: 6 Apr 91 01:06:24 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: NASA Prediction Bulletins  
To: info-hams@ucsd.edu

The most current orbital elements from the NASA Prediction Bulletins are carried on the Celestial BBS, (513) 427-0674, and are updated several times weekly. Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current of these elements are uploaded weekly to sci.space. This week's elements are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, or 2400 baud using 8 data bits, 1 stop bit, no parity.

- Current NASA Prediction Bulletins #831 -

Alouette 1

1 00424U 62B-A 1 91 95.13851789 .000000521 00000-0 61021-3 0 3957  
2 00424 80.4687 358.2239 0021859 242.5312 117.3602 13.67505428422594

ATS 3

1 03029U 67111 A 91 93.81179965 -.000000075 00000-0 99999-4 0 5187  
2 03029 13.5606 18.7315 0015904 227.2492 132.4924 1.00272810 85705

Cosmos 398

1 04966U 71 16 A 91 95.01772659 .00103259 19096-4 51977-3 0 4807  
2 04966 51.5132 199.5469 2066348 357.9264 1.3895 11.50545081624538

# Starlette

1 07646U 75010 A 91 93.44257480 .000000039 00000-0 78106-4 0 2016  
2 07646 49.8197 93.1645 0205678 69.9955 292.2957 13.82153533815927

## LAGEOS

1 08820U 76039 A 91 88.10490856 .000000009 00000-0 20291-1 0 2168  
2 08820 109.8384 92.7345 0044368 177.9910 182.1095 6.38664189 92134

## GOES 2

1 10061U 77048 A 91 94.79948963 -.000000258 00000-0 99999-4 0 5724  
2 10061 8.7543 60.1619 0004406 332.2857 27.6671 1.00257629 51933

## IUE

1 10637U 78012 A 91 92.92448074 -.000000180 00000-0 79862-4 0 2218  
2 10637 32.7524 114.1648 1409334 1.0220 359.3532 1.00289358 9371

## GPS-0001

1 10684U 78020 A 91 94.12726045 .000000004 00000-0 99999-4 0 6132  
2 10684 63.9100 80.5188 0127729 200.5087 158.9536 2.00553735 81680

## GPS-0002

1 10893U 78 47 A 91 93.62972199 -.000000022 00000-0 99999-4 0 3318  
2 10893 64.2756 321.4075 0179487 24.9710 335.8318 2.00536848 94497

## GOES 3

1 10953U 78062 A 91 75.18784986 .000000090 00000-0 99999-4 0 533  
2 10953 7.5973 63.3168 0003190 104.1918 255.8528 1.00264070 7647

## SeaSat 1

1 10967U 78064 A 91 93.25402414 .000001877 00000-0 68168-3 0 4880  
2 10967 108.0137 199.1300 0002589 234.4558 125.5803 14.36423763668095

## GPS-0003

1 11054U 78093 A 91 93.87208620 -.000000021 00000-0 99999-4 0 3619  
2 11054 63.7572 317.5496 0064217 116.9980 243.7057 2.00572381 91514

## Nimbus 7

1 11080U 78098 A 91 86.73693432 .000000357 00000-0 35308-3 0 7370  
2 11080 99.1750 349.9490 0009613 47.9953 312.2033 13.83526670627243

## GPS-0004

1 11141U 78112 A 91 90.50727371 .000000004 00000-0 99999-4 0 1443  
2 11141 63.8495 80.5318 0061558 311.4115 48.0539 2.00546501 90147

## GPS-0005

1 11690U 80 11 A 91 89.14913912 .000000005 00000-0 99999-4 0 1035  
2 11690 64.3336 82.8523 0123107 203.1402 156.3021 2.00552478 95979

## GPS-0006

1 11783U 80 32 A 91 94.42963052 -.000000021 00000-0 99999-4 0 4041  
2 11783 63.5641 317.0252 0160698 59.2155 302.4094 2.00576720 80160

## GOES 5

1 12472U 81049 A 91 93.05879893 .000000135 00000-0 99999-4 0 640  
2 12472 4.1896 72.2051 0002580 277.1790 82.8811 1.00250240 35135

## Cosmos 1383

1 13301U 82 66 A 91 94.01230107 .000000267 00000-0 30280-3 0 6939  
2 13301 82.9292 87.6399 0029159 78.0258 282.4149 13.67901179437435

## LandSat 4

1 13367U 82 72 A 91 94.14433069 -.000001039 00000-0 -22559-3 0 7283  
2 13367 98.1189 155.3016 0002728 320.2178 39.8961 14.57150820463676

# IRAS

1 13777U 83 4 A 91 86.02437821 .00000362 00000-0 27469-3 0 9128  
 2 13777 99.0138 283.2803 0012313 329.1255 30.9195 13.98911137 86486

## Cosmos 1447

1 13916U 83 21 A 91 92.20645934 .00000325 00000-0 33234-3 0 7871  
 2 13916 82.9430 158.3862 0039821 54.2150 306.2676 13.74129195402368

## TDRS 1

1 13969U 83 26 B 91 94.11729893 .00000126 00000-0 99999-4 0 2979  
 2 13969 5.1725 63.2351 0003931 321.3542 38.6083 1.00273856 2266

## GOES 6

1 14050U 83 41 A 91 94.05176097 .00000115 00000-0 99999-4 0 3961  
 2 14050 2.9625 74.7347 0004475 343.7544 16.4602 1.00279059 1056

## OSCAR 10

1 14129U 83 58 B 91 93.44323140 .00000105 00000-0 99999-4 0 6446  
 2 14129 25.7520 152.9573 6003652 229.9595 59.5225 2.05878797 30717

## GPS-0008

1 14189U 83 72 A 91 93.86335665 .00000003 00000-0 99999-4 0 9067  
 2 14189 63.5181 78.7504 0143657 225.2784 133.5242 2.00568387 56590

## LandSat 5

1 14780U 84 21 A 91 93.14885311 .00000428 00000-0 99999-4 0 5762  
 2 14780 98.2359 154.4285 0002970 177.9990 182.0479 14.57100517376948

## UoSat 2

1 14781U 84 21 B 91 94.62232468 .00004631 00000-0 84039-3 0 9533  
 2 14781 97.9094 142.1415 0013395 39.1900 321.0023 14.66629690378662

## GPS-0009

1 15039U 84 59 A 91 88.05356905 .00000002 00000-0 99999-4 0 1750  
 2 15039 63.2649 78.0504 0028365 227.1586 132.6033 2.00565549 49758

## Cosmos 1574

1 15055U 84 62 A 91 88.35423803 .00000384 00000-0 40075-3 0 388  
 2 15055 82.9562 212.0664 0025978 250.8608 108.9752 13.73434896339219

## GPS-0010

1 15271U 84 97 A 91 90.49163887 -.00000021 00000-0 99999-4 0 218  
 2 15271 63.0536 316.5576 0112613 332.2203 27.2164 2.00564185 46916

## Cosmos 1602

1 15331U 84105 A 91 94.96513981 .00006501 00000-0 85167-3 0 5174  
 2 15331 82.5245 90.1828 0024873 99.4930 260.8921 14.80029725351215

## NOAA 9

1 15427U 84123 A 91 94.28164991 .00001050 00000-0 58443-3 0 7227  
 2 15427 99.1731 106.0202 0014110 273.1516 86.8038 14.12930502325082

## GPS-0011

1 16129U 85 93 A 91 94.19940955 .00000003 00000-0 99999-4 0 7360  
 2 16129 64.0328 79.0760 0122680 147.7995 212.9546 2.00564583 40190

## Mir

1 16609U 86 17 A 91 93.36149030 .00055135 00000-0 53911-3 0 3537  
 2 16609 51.6059 306.9584 0014308 135.2600 225.0117 15.65471891293445

## SPOT 1

1 16613U 86 19 A 91 94.21614301 .00001166 00000-0 56518-3 0 2751  
 2 16613 98.7013 169.4145 0001593 91.4179 268.7145 14.20071301105239

Cosmos 1766

1 16881U 86 55 A 91 94.11649281 .00004333 00000-0 57529-3 0 3766  
2 16881 82.5266 149.6880 0023061 117.5675 242.7920 14.79424493252131

EGP

1 16908U 86 61 A 91 93.41884235 -.00000025 00000-0 99999-4 0 3432  
2 16908 50.0060 83.7488 0011387 213.7648 146.2462 12.44393999210995

NOAA 10

1 16969U 86 73 A 91 93.22928864 .00001418 00000-0 63313-3 0 5650  
2 16969 98.5722 119.3231 0014000 141.8723 218.3441 14.24031907235887

MOS-1

1 17527U 87 18 A 91 91.21003034 .00000829 00000-0 64198-3 0 7683  
2 17527 99.0751 164.6035 0000919 71.7285 288.3975 13.94901408209416

GOES 7

1 17561U 87 22 A 91 91.77246377 -.00000045 00000-0 99999-4 0 7506  
2 17561 0.0221 110.6154 0006189 263.6385 345.7635 1.00272231 8461

Kvant-1

1 17845U 87 30 A 91 94.95724462 .00072795 00000-0 70274-3 0 5220  
2 17845 51.6042 298.8617 0014387 143.3444 216.7322 15.65675049228421

DMSP B5D2-3

1 18123U 87 53 A 91 94.61425992 .00001684 00000-0 89720-3 0 8907  
2 18123 98.8153 286.3191 0013619 275.3873 84.5743 14.14485829195592

RS-10/11

1 18129U 87 54 A 91 94.12077951 .00000097 00000-0 99999-4 0 5733  
2 18129 82.9215 113.5951 0012903 38.7826 321.4268 13.72167552189434

Meteor 2-16

1 18312U 87 68 A 91 89.02726487 .00000283 00000-0 24617-3 0 6170  
2 18312 82.5513 63.7309 0011889 163.2510 196.9050 13.83753913182514

Meteor 2-17

1 18820U 88 5 A 91 93.52354186 .00000384 00000-0 33349-3 0 4665  
2 18820 82.5424 119.6635 0015085 227.4905 132.4972 13.84467618160356

DMSP B5D2-4

1 18822U 88 6 A 91 93.24382015 .00001005 00000-0 47249-3 0 8286  
2 18822 98.6049 330.7037 0007148 144.2913 215.8744 14.21906569164034

Glionass 34

1 19163U 88 43 A 91 95.02549706 .00000020 00000-0 99999-4 0 2163  
2 19163 64.9157 149.4100 0007174 198.1248 161.9232 2.13102540 22360

Glionass 36

1 19165U 88 43 C 91 94.61311426 .00000020 00000-0 99999-4 0 2086  
2 19165 64.9005 149.4213 0004553 325.6972 34.3475 2.13102752 22354

A0-13

1 19216U 88 51 B 91 78.38609337 .00000215 00000-0 44351-3 0 2424  
2 19216 56.8112 104.6916 7140389 249.8316 25.0884 2.09695125 21173

OKEAN 1

1 19274U 88 56 A 91 94.17642323 .00004333 00000-0 58811-3 0 812  
2 19274 82.5140 248.3663 0020326 253.2220 106.6761 14.78536648147894

Meteor 3-2

1 19336U 88 64 A 91 88.93495538 .00000054 00000-0 12315-3 0 7150  
2 19336 82.5403 75.2686 0017218 324.4696 35.5287 13.16916762128567



# Glonass 39

```

1 19503U 88 85 C 91 94.63285016 -.000000018 000000-0 99999-4 0 1341
2 19503 65.4479 28.7596 0004577 203.3759 156.6065 2.13103381 19847

```

## NOAA 11

```

1 19531U 88 89 A 91 93.24338171 .00001021 000000-0 57715-3 0 4765
2 19531 99.0236 47.5080 0011637 181.6373 178.4770 14.12045110129893

```

## TDRS 2

```

1 19548U 88 91 B 91 89.96222724 .000000115 000000-0 99999-4 0 2353
2 19548 0.8252 79.5164 0002691 292.1952 348.3100 1.00279109 7797

```

## Glonass 40

```

1 19749U 89 1 A 91 93.73575753 .000000020 000000-0 99999-4 0 9184
2 19749 64.8597 149.1139 0007178 273.6872 86.3061 2.13101844 17351

```

## Glonass 41

```

1 19750U 89 1 B 91 94.26310804 .000000020 000000-0 99999-4 0 9718
2 19750 64.8811 149.1204 0007236 256.6358 103.3581 2.13102184 17366

```

## GPS BII-01

```

1 19802U 89 13 A 91 58.17527061 .000000017 000000-0 99999-4 0 2319
2 19802 55.0455 187.3559 0050904 163.2354 196.8890 2.00558153 14865

```

## Akebono

```

1 19822U 89 16 A 91 94.53078275 .00032651 000000-0 18323-2 0 9802
2 19822 75.0680 94.2908 4102887 33.3915 346.8778 7.25989939 20743

```

## Meteor 2-18

```

1 19851U 89 18 A 91 93.78845414 .000000656 000000-0 57956-3 0 4204
2 19851 82.5249 356.9153 0012789 272.5151 87.4533 13.84110168105760

```

## MOP-1

```

1 19876U 89 20 B 91 83.49536303 .000000025 000000-0 99999-4 0 1835
2 19876 0.2513 49.9473 0001444 323.2796 346.7560 1.00274330 3470

```

## TDRS 3

```

1 19883U 89 21 B 91 81.61557064 -.000000238 000000-0 99999-4 0 2347
2 19883 0.8413 80.3073 0001699 283.3269 356.3624 1.00260420 77688

```

## GPS BII-02

```

1 20061U 89 44 A 91 58.00437706 -.000000034 000000-0 99999-4 0 2332
2 20061 54.8640 5.4895 0089842 183.4176 176.5173 2.00566400 12602

```

## Nadezhda 1

```

1 20103U 89 50 A 91 91.98700744 .000000392 000000-0 40622-3 0 3138
2 20103 82.9570 72.1153 0037236 317.0587 42.7646 13.73671203 87366

```

## GPS BII-03

```

1 20185U 89 64 A 91 57.34599602 .000000016 000000-0 99999-4 0 1766
2 20185 54.8906 188.1900 0021289 164.8064 195.2144 2.00568043 11161

```

## GPS BII-04

```

1 20302U 89 85 A 91 41.91577973 -.000000024 000000-0 99999-4 0 1785
2 20302 54.4598 307.3315 0032510 329.9999 29.8633 2.00556091 9656

```

## Meteor 3-3

```

1 20305U 89 86 A 91 88.80296795 .000000043 000000-0 99999-4 0 3296
2 20305 82.5517 16.5478 0016184 342.7902 17.2685 13.15944004 68518

```

## COBE

```

1 20322U 89 89 A 91 94.55162511 .000000559 000000-0 38231-3 0 2646
2 20322 99.0232 107.1204 0008532 284.9943 75.0244 14.03034218 70340

```

# Kvant-2

1 20335U 89 93 A 91 94.89343573 .00072758 00000-0 70274-3 0 6233  
2 20335 51.6088 299.1833 0014198 142.4769 217.7027 15.65666936 77344

## GPS BII-05

1 20361U 89 97 A 91 94.27896796 .00000013 00000-0 99999-4 0 1368  
2 20361 55.0316 128.8202 0062922 60.9080 299.7837 2.00558030 188

## SPOT 2

1 20436U 90 5 A 91 88.68536931 -.00007637 00000-0 -35903-2 0 5090  
2 20436 98.7045 164.0636 0001256 39.6588 320.4404 14.20015423 61263

## UO-14

1 20437U 90 5 B 91 94.21793448 .00001517 00000-0 61478-3 0 3235  
2 20437 98.6741 174.1246 0011759 27.5854 332.5834 14.29030011 62425

## UO-15

1 20438U 90 5 C 91 92.20318592 .00001016 00000-0 42014-3 0 2021  
2 20438 98.6752 172.0187 0010696 33.7934 326.3925 14.28636895 62126

## PACSAT

1 20439U 90 5 D 91 93.69744985 .00001512 00000-0 61186-3 0 2140  
2 20439 98.6758 173.8797 0012006 30.7659 329.4213 14.29119657 62359

## DO-17

1 20440U 90 5 E 91 88.71131811 .00001733 00000-0 69780-3 0 2139  
2 20440 98.6768 168.9601 0011690 43.9493 316.2645 14.29180356 61649

## WO-18

1 20441U 90 5 F 91 94.70463820 .00001466 00000-0 59205-3 0 2138  
2 20441 98.6731 174.9599 0012978 27.7203 332.4623 14.29254042 62508

## LO-19

1 20442U 90 5 G 91 93.42294664 .00001472 00000-0 59351-3 0 2156  
2 20442 98.6749 173.7379 0013062 31.7226 328.4666 14.29326164 62323

## GPS BII-06

1 20452U 90 8 A 91 67.75229359 .00000004 00000-0 99999-4 0 1530  
2 20452 54.3982 245.2075 0046174 52.4825 307.8626 2.00554625 8154

## MOS-1B

1 20478U 90 13 A 91 94.18515243 .00000444 00000-0 35652-3 0 5279  
2 20478 99.1526 167.6836 0000813 66.1480 293.9746 13.94850032 58704

## DEBUT

1 20479U 90 13 B 91 93.91871044 .00000043 00000-0 14529-3 0 1905  
2 20479 99.0237 90.1908 0541434 109.7385 256.2927 12.83174670 54039

## FO-20

1 20480U 90 13 C 91 86.98392873 .00000105 00000-0 28514-3 0 1834  
2 20480 99.0230 84.5750 0541449 125.5056 239.7812 12.83179882 53143

## MOS-1B R/B

1 20491U 90 13 D 91 93.04620643 -.00000131 00000-0 -22146-3 0 2129  
2 20491 99.0200 101.2385 0471195 71.7776 293.4005 13.02811548 54140

## LACE

1 20496U 90 15 A 91 94.53486482 .00013981 00000-0 72658-3 0 4863  
2 20496 43.0947 157.0041 0018556 19.6165 340.5392 15.15804704 62729

## RME

1 20497U 90 15 B 91 94.23308430 .00029462 00000-0 58625-3 0 5171  
2 20497 43.1022 64.8563 0017608 104.9616 255.3225 15.46214501 63717

Nadezhda 2

1 20508U 90 17 A 91 94.30954967 .00000434 00000-0 45428-3 0 2684  
2 20508 82.9557 205.2298 0043219 255.7573 103.8757 13.73296259 54966

OKEAN 2

1 20510U 90 18 A 91 94.94584045 .00006094 00000-0 90712-3 0 4556  
2 20510 82.5283 188.7946 0020855 43.9697 316.3151 14.74654709 59044

INTELSAT-6

1 20523U 90 21 A 91 91.55355126 -.00000992 00000-0 -77177-4 0 4503  
2 20523 28.3374 172.8868 0015279 28.8362 331.3048 15.03589821 57875

GPS BII-07

1 20533U 90 25 A 91 91.09691664 -.00000034 00000-0 99999-4 0 1472  
2 20533 55.1876 4.3259 0034689 96.5964 263.7984 2.00566505 7396

PegSat

1 20546U 90 28 A 91 94.24677925 .00025957 00000-0 13570-2 0 4879  
2 20546 94.1393 10.6774 0135622 2.3419 357.8425 15.08088527 53816

HST

1 20580U 91 93.55178018 .00007055 00000-0 75344-3 0 4046  
2 20580 28.4693 199.4006 0005665 253.8939 106.1024 14.87067503 51190

Glomass 44

1 20619U 90 45 A 91 94.10594158 -.00000018 00000-0 99999-5 0 4278  
2 20619 65.0505 28.9660 0022351 218.4309 141.4147 2.13102902 6820

Glomass 45

1 20620U 90 45 B 91 94.22382088 -.00000018 00000-0 99999-4 0 4448  
2 20620 65.0455 28.9610 0008342 24.0831 335.9637 2.13102850 6833

Glomass 46

1 20621U 90 45 C 91 94.28264494 -.00000018 00000-0 99999-4 0 3804  
2 20621 65.0682 28.9676 0012300 210.6929 149.2403 2.13102500 6837

Kristall

1 20635U 90 48 A 91 94.89342307 .00072717 00000-0 70274-3 0 4235  
2 20635 51.6020 299.1850 0014091 140.1652 219.9345 15.65654440 48229

ROSAT

1 20638U 90 49 A 91 94.27010650 .00008624 00000-0 69777-3 0 2278  
2 20638 53.0036 196.9989 0017148 133.7125 226.5211 15.00381324 45939

Meteor 2-19

1 20670U 90 57 A 91 90.91212057 .00000404 00000-0 35409-3 0 1659  
2 20670 82.5424 60.2634 0015213 194.8707 165.1978 13.83934106 38311

CRRES

1 20712U 90 65 A 91 93.82490464 .00003065 00000-0 32741-2 0 1895  
2 20712 18.0139 303.1209 7117377 33.3239 355.9742 2.44199337 6160

GPS BII-08

1 20724U 90 68 A 91 55.54435681 .00000016 00000-0 99999-4 0 845  
2 20724 54.6996 186.1883 0096447 122.6748 238.2165 2.00563932 4103

Feng Yun1-2

1 20788U 90 81 A 91 93.95439479 .00001055 00000-0 72566-3 0 1278  
2 20788 98.9396 128.9952 0014960 31.2418 328.9624 14.01107544 29817

Meteor 2-20

1 20826U 90 86 A 91 94.15089793 .00000667 00000-0 59727-3 0 1215  
2 20826 82.5322 356.7772 0014882 84.2858 275.9995 13.83321721 25977

## GPS BII-09

1	20830U	90 88	A 91	83.50103202	.000000012	000000-0	99999-4 0	883
2	20830	54.9179 127.4127 0074658		116.7093 244.1254	2.00567571		3740	

## GPS BII-10

1	20959U	90103	A 91	76.43064871	.000000017	000000-0	99999-4 0	262
2	20959	54.9591 186.9802 0045402		213.8318 146.2541	2.00567535		2193	

## DMSP B5D2-5

1	20978U		91	94.43826266	.000001762	000000-0	66503-3 0	1043
2	20978	98.8434 129.9757 0080949		356.2244 3.8321 14.30804329			17706	

## Soyuz TM-11

1	20981U	90107	A 91	94.95725344	.00072793	000000-0	70274-3 0	1273
2	20981	51.6086 298.8601 0014377		142.0772 218.0443 15.65675260			19349	

## Glonass 47

1	21006U	90110	A 91	94.32174536	.000000020	000000-0	99999-4 0	1100
2	21006	64.8356 148.5060 0061864		186.7350 173.2550	2.13102082		2512	

## Glonass 48

1	21007U	90110	B 91	94.02915662	.000000020	000000-0	99999-4 0	1257
2	21007	64.8592 148.5465 0039270		181.1337 178.9315	2.13100272		2503	

## Glonass 49

1	21008U	90110	C 91	94.38122721	.000000020	000000-0	99999-4 0	1062
2	21008	64.8407 148.5196 0010812		289.7852 70.1644	2.13100223		2513	

## INFORMTR-1

1	21087U		91	94.13517494	.000000295	000000-0	29999-3 0	274
2	21087	82.9417 288.5236 0036580		103.5879 256.9355 13.74363411			8859	

## Cosmos 2123

1	21089U	91 7	A 91	90.20658587	.000000339	000000-0	34936-3 0	294
2	21089	82.9282 161.9091 0029955		133.3412 227.0248 13.73881132			7433	

## MOP-2

1	21140U	91 15	B 91	93.30029275	.000000001	000000-0	99999-4 0	298
2	21140	1.1519 296.8769 0002337		11.4195 347.4511	1.00295032		119	

## INMARSAT 2

1	21149U	91 18	A 91	92.28410505	.000000039	000000-0	99999-4 0	163
2	21149	2.6899 295.7828 0005580		334.1341 25.3237	1.00260191		283	

## 1991 018B

1	21150U	91 18	B 91	94.51885931	.00014049	000000-0	10296-2 0	282
2	21150	24.9621 163.0874 0527286		70.8445 294.8389 14.31061693			3800	

## 1991 018C

1	21151U	91 18	C 91	89.60279699	.00045325	000000-0	61813-2 0	153
2	21151	23.6969 321.1458 7323833		199.1640 104.3207	2.24438222		488	

## Nadezhda 3

1	21152U	91 19	A 91	94.16516663	.000000006	000000-0	00000 0 0	152
2	21152	82.9244 113.7134 0040590		229.0007 130.7640 13.73323521			3071	

## 1991 019B

1	21153U	91 19	B 91	93.56020761	.000000579	000000-0	59446-3 0	242
2	21153	82.9229 114.1258 0038340		210.9053 148.9872 13.74768729			2999	

## Progress M7

1	21188U	91 20	A 91	94.95733166	-.00080375	000000-0	-78955-3 0	404
2	21188	51.6109 298.8571 0017749		130.6478 229.8793 15.65561893			2585	

Cosmos 2137

1 21190U 91 21 A 91 93.15458588 .00019776 00000-0 63069-3 0 215  
2 21190 65.8503 329.3708 0035004 334.2252 25.7126 15.31969428 2235

1991 021B

1 21191U 91 21 B 91 94.18581749 .00033844 00000-0 10201-2 0 329  
2 21191 65.8372 325.9897 0037258 349.1645 10.8675 15.33470312 2397

1991 022A

1 21196U 91 22 A 91 92.90649108 .00000200 00000-0 10768-2 0 178  
2 21196 62.8487 312.4326 7433393 280.4579 10.6288 2.00745254 244

1991 022B

1 21197U 91 22 B 91 92.55158953 .25189034 43669-4 43370-3 0 340  
2 21197 62.8062 271.0340 0022763 133.7532 226.6568 16.45597799 1780

1991 022D

1 21199U 91 22 D 91 90.80579986 .00000027 00000-0 -77387-3 0 61  
2 21199 62.8477 312.5711 7378050 280.7000 10.9576 2.05628335 209

1991 014E

1 21201U 91 14 E 91 94.49094643 .00003254 00000-0 16242-2 0 96  
2 21201 47.4873 239.3153 7228843 9.1047 358.8223 2.32989325 848

1991 014F

1 21202U 91 14 F 91 91.84349476 .00008713 00000-0 15798-2 0 67  
2 21202 47.4583 239.9362 7244752 8.4852 358.8807 2.33667277 789

1991 023A

1 21203U 91 23 A 91 95.16142316 .00688680 27566-4 39503-3 0 250  
2 21203 67.1475 344.1937 0114984 67.2603 294.1598 16.05240520 1545

1991 023B

1 21204U 91 23 B 91 87.84647494 .18280002 30103-4 33209-3 0 134  
2 21204 67.1627 8.6511 0046059 91.9560 269.0962 16.41670542 375

1991 024A

1 21213U 91 24 A 91 94.08022943 .00110733 62300-5 21611-3 0 183  
2 21213 72.7010 92.9923 0009742 261.0214 91.1055 16.00037000 569

1991 024B

1 21214U 91 24 B 91 92.22001654 .13031554 13419-4 17927-3 0 104  
2 21214 72.7053 97.8249 0025034 58.1287 302.6246 16.46817551 265

STS 37

1 21224U 91 27 A 91 95.65050502 .00000248 00000-0 32191-5 0 16  
2 21224 28.4682 238.4333 0008760 266.0250 93.9346 15.37932365 10

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Air Force Institute of Technology

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Date: 5 Apr 91 22:31:04 GMT  
From: pilchuck!ssc!fyl@uunet.uu.net  
Subject: Ultrasonics.  
To: info-hams@ucsd.edu

In article <7154@mace.cc.purdue.edu>, dil@mace.cc.purdue.edu (Perry G Ramsey)

writes:

> In article <1991Apr4.164309.21711@math.lsa.umich.edu>, hideg@spsd4360a.erim.org  
(Steve Hideg (Mr. Fabulous) ) writes:  
> > In article <04.Apr.91.16:07:10.BST.#3428@UK.AC.NWL.IA>  
> > PJML@ibma.nerc-wallingford.ac.UK (Pete Lucas, NCS-TLC, Holbrook House,  
> > Swindon) writes:  
> > The Heath Company now sells a device called the Dazer, that transmits an audio  
> > (tone?) at a frequency that only dogs can hear. It supposedly "stops dogs in  
their tracks". Is this a myth?

Even more amusing is the fact that on the same page in the Heath catalog is  
a device that consists of a PIR motion detector and a "barking dog" generator.  
My question, of course, is whether or not the Dazer will silence  
the Heath "barking dog".  
:-)

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Phil Hughes, SSC, Inc. P.O. Box 55549, Seattle, WA 98155 (206)FOR-UNIX  
uunet!pilchuck!ssc!fyl or attmail!ssc!fyl (206)527-3385

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End of Info-Hams Digest

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